


```
XX      XX  TTTTTTTTTT  AAAAAA  BBBB88888
XX      XX  TTTTTTTTTT  AAAAAA  888888888
XX      XX  TT          AA      AA  88      88
XX      XX  TT          AA      AA  88      88
      XX  XX  TT          AA      AA  88      88
      XX  XX  TT          AA      AA  888888888
      XX  XX  TT          AA      AA  888888888
      XX  XX  TT          AAAAAAAAAA  88      88
      XX  XX  TT          AAAAAAAAAA  88      88
XX      XX  TT          AA      AA  88      88
XX      XX  TT          AA      AA  888888888
XX      XX  TT          AA      AA  888888888
      . . . .
      . . . .
      . . . .
      . . . .
```

```
LL      IIIIII  SSSSSSSS
LL      IIIIII  SSSSSSSS
LL      II      SS
LL      II      SS
LL      II      SS
LL      II      SS
LL      II      SSSSSS
LL      II      SSSSSS
LL      II      SS
LL      II      SS
LL      II      SS
LL      II      SS
LLLLLLLLLLL  IIIIII  SSSSSSSS
LLLLLLLLLLL  IIIIII  SSSSSSSS
```

_S
SD
DE
LB
LI
SC
SM

XTAB

J 4
16-Sep-1984 01:57:23
14-Sep-1984 13:08:31VAX-11 Bliss-32 V4.0-742
DISK\$VMSMASTER:[RUNOFF.SRC]XTAB.BLI;1
Page 1 (1)

```
0001 0 MODULE XTAB (
0002 0 IDENT = 'V04-000'
P 0003 0 %BLISS32C,
P 0004 0 ADDRESSING_MODE(EXTERNAL=LONG_RELATIVE, NONEXTERNAL=LONG_RELATIVE)
0005 0 ]
0006 0 ) =
0007 1 BEGIN
0008 1
0009 1 *****
0010 1 *
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0027 1 * SOFTWARE ON EQUIPMENT WHICH IS NOT SUPPLIED BY DIGITAL.
0028 1 *
0029 1 *
0030 1 *****
0031 1
0032 1 ++
0033 1 FACILITY: DSR (Digital Standard RUNOFF) / DSRPLUS
0034 1
0035 1 ABSTRACT: Expands a tab, according to tab stop settings.
0036 1
0037 1 ENVIRONMENT: Transportable
0038 1
0039 1 AUTHOR: R.W.Friday CREATION DATE: July, 1978
0040 1
```

XTAB
V04-000

Revision History

K 4
16-Sep-1984 01:57:23
14-Sep-1984 13:08:31

VAX-11 Bliss-32 V4.0-742
DISK\$VMMASTER:[RUNOFF.SRC]XTAB.BLI;1 Page 2 (2)

:	42	0041	1	%SBTTL 'Revision History'
:	43	0042	1	
:	44	0043	1	MODIFIED BY:
:	45	0044	1	
:	46	0045	1	006 KFA00006 Ken Alden 28-Jun-1983
:	47	0046	1	Tab may now expand out to the right margin, which may
:	48	0047	1	be larger than the page size.
:	49	0048	1	
:	50	0049	1	005 KAD00005 Keith Dawson 07-Mar-1983
:	51	0050	1	Global edit of all modules. Updated module names, idents,
:	52	0051	1	copyright dates. Changed require files to BLISS library.
:	53	0052	1	
:	54	0053	1	--

XTAB
V04-000

Module Level Declarations

L 4
16-Sep-1984 01:57:23
14-Sep-1984 13:08:31

VAX-11 Bliss-32 V4.0-742
DISK\$VMSMASTER:[RUNOFF.SRC]XTAB.BLI;1 Page 3 (3)

```

56      0054 1 %SBTTL 'Module Level Declarations'
57      0055 1
58      0056 1
59      0057 1 | TABLE OF CONTENTS:
60      0058 1
61      0059 1
62      0060 1 | INCLUDE FILES:
63      0061 1
64      0062 1
65      0063 1 LIBRARY 'NXPORT:XPORT';      ! XPORT Library
66      0064 1 REQUIRE 'REQ:RNODEF';      ! RUNOFF variant definitions
67      0195 1
68      U 0196 1 %IF DSRPLUS %THEN
69      U 0197 1 LIBRARY 'REQ:DPLLIB';      ! DSRPLUS BLISS Library
70      0198 1 %ELSE
71      0199 1 LIBRARY 'REQ:DSRLIB';      ! DSR BLISS Library
72      0200 1 %FI
73      0201 1
74      0202 1
75      0203 1 | MACROS:
76      0204 1
77      0205 1
78      0206 1 | EQUATED SYMBOLS:
79      0207 1
80      0208 1
81      0209 1 EXTERNAL LITERAL
82      0210 1 RINTES : UNSIGNED (8);
83      0211 1
84      0212 1 |
85      0213 1 | OWN STORAGE:
86      0214 1
87      0215 1
88      0216 1 | EXTERNAL REFERENCES:
89      0217 1
90      0218 1
91      0219 1 EXTERNAL
92      0220 1 mra : ref fixed_string,
93      0221 1 sca : sca_definition,
94      0222 1 tsf : tsf_definition,
95      0223 1 ttable : counted_list;
96      0224 1
97      0225 1 EXTERNAL ROUTINE
98      0226 1 endchr, endwrd, fcimra, remneg;
99      0227 1
```

XTAB
V04-000

Module Level Declarations

M 4
16-Sep-1984 01:57:23
14-Sep-1984 13:08:31

VAX-11 Bliss-32 V4.0-742
DISK\$VMSMASTER:[RUNOFF.SRC]XTAB.BLI;1 Page 4 (4)

```

101 0228 1 GLOBAL ROUTINE xtab =
102 0229 1
103 0230 1 ++
104 0231 1 FUNCTIONAL DESCRIPTION:
105 0232 1
106 0233 1     Expands tabs.
107 0234 1
108 0235 1 FORMAL PARAMETERS:    None
109 0236 1
110 0237 1 IMPLICIT INPUTS:      None
111 0238 1
112 0239 1 IMPLICIT OUTPUTS:     None
113 0240 1
114 0241 1 ROUTINE VALUE:
115 0242 1 COMPLETION CODES:
116 0243 1
117 0244 1     Returns TRUE if the tab could be expanded, otherwise FALSE.
118 0245 1
119 0246 1 SIDE EFFECTS:
120 0247 1
121 0248 1     Generally causes a reorganization of TSF, MRA, and SCA.
122 0249 1 --
123 0250 2 BEGIN
124 0251 2
125 0252 2 LOCAL
126 0253 2     current_ext_hl,
127 0254 2     d_ptr,
128 0255 2     fill_count,
129 0256 2     hold_cnbits,
130 0257 2     s_ptr;
131 0258 2
132 0259 2 +
133 0260 2 Compute current length of line. When doing this count trailing spaces, etc.
134 0261 2 If the SCA_rent word is not yet finished then SCA_WRD CPEND will count as a
135 0262 2 spacing character, otherwise as a non-spacer, since it will contain RINTES.
136 0263 2 Also, detect the fact that the tab may be the very first character to be
137 0264 2 generated on the output line.
138 0265 2 -
139 0266 2
140 0267 2 +
141 0268 2 If a negative indent is pending, do not cancel it. Instead, subtract it from
142 0269 2 the left margin before beginning the tab-expansion check. (V1.124f,
143 0270 2 21-OCT-1980, kad.)
144 0271 2 -
145 0272 2 IF (.tsf_ext_hl EQL 0)
146 0273 2     AND .sca_fc
147 0274 2 THEN
148 0275 2 BEGIN
149 0276 2     !Any positive pending indentation is canceled because tabs are, by
150 0277 2     !definition, relative to the left margin and do not include
151 0278 2     !indentation.
152 0279 2     IF .sca_indent GTR 0
153 0280 2     THEN
154 0281 2         sca_indent = 0;
155 0282 2     !Subtract the indent if it is negative.
156 0283 2     current_ext_hl = .sca_lm + .sca_indent;
157 0284 2 END
```



```
158 0285 2 ELSE
159 0286 2     current_ext_hl = .tsf_ext_hl;
160 0287 2
161 0288 2 IF .current_ext_hl LSS 0
162 0289 2 THEN
163 0290 2     BEGIN
164 0291 2         remneg ();                !Attempted negative indent.
165 0292 2         current_ext_hl = 0;
166 0293 2     END;
167 0294 2
168 0295 2     current_ext_hl = .current_ext_hl + .sca_wrd_ext_l + .sca_wrd_lst_sp;
169 0296 2
170 0297 2 IF .sca_wrd_cpend GEQ %C' '
171 0298 2 THEN
172 0299 2     current_ext_hl = .current_ext_hl + 1;
173 0300 2
174 0301 2 INCR i FROM 1 TO .ttable [cl_index] DO
175 0302 2     BEGIN
176 0303 2         IF .ttable [i] GTR .current_ext_hl
177 0304 2         THEN
178 0305 2             BEGIN                !Found a suitable tab setting.
179 0306 2             +
180 0307 2             + Compute number of spaces needed to be added to line. Do not allow user to tab
181 0308 2             + past the right edge of his page. If the user is in a literal, the right margin
182 0309 2             + will be larger than the page-width. In this case, allow him to expand tabs out
183 0310 2             + to the right margin. (V1.124f, 21-OCT-1980, kad.)
184 0311 2             -
185 0312 2                 IF .ttable [i] GEQ .sca_rm
186 0313 2                 THEN
187 0314 2                     RETURN false
188 0315 2                 ELSE
189 0316 2                     fill_count = .ttable [i] - .current_ext_hl;
190 0317 2
191 0318 2             +
192 0319 2             + At this point we are certain that this tab can be expanded. All spacing
193 0320 2             + characters have been counted. Now force the current word (if there is one)
194 0321 2             + to be ended. That resets lots of counters, and in particular, forces the
195 0322 2             + final pending character into MRA.
196 0323 2             -
197 0324 2             endwrd (false, false, false);    !Anticipate no spaces or justification.
198 0325 2
199 0326 2             !Now remove all justification marks from TSF.
200 0327 2             !This is done by scanning the entire MRA, where the line is
201 0328 2             !being built up.
202 0329 2             s_ptr = .fs_start (mra);
203 0330 2             d_ptr = .s_ptr;
204 0331 2
205 0332 2             INCR i FROM 1 TO .tsf_int_hl + .tsf_int_vl DO
206 0333 2                 BEGIN
207 0334 2                     LOCAL
208 0335 2                         x,
209 0336 2                         y;
210 0337 2
211 0338 2                     x = CH$RCHAR_A (s_ptr);
212 0339 2
213 0340 2                     IF .x EQL rintes
214 0341 2                     THEN
```



```

: 215 0342 6 BEGIN
: 216 0343 6 !See if this is a justification mark.
: 217 0344 6 y = CH$RCHAR_A (s_ptr);
: 218 0345 6
: 219 0346 6 IF .y EQL %C'J'
: 220 0347 6 THEN
: 221 0348 7 BEGIN !Throw away the justification mark
: 222 0349 7 s_ptr = CH$PLUS (.s_ptr, 1);
: 223 0350 7 i = .i + 2;
: 224 0351 7 END
: 225 0352 6 ELSE
: 226 0353 7 BEGIN !Save this escape sequence
: 227 0354 7 CH$WCHAR_A (rintes, d_ptr);
: 228 0355 7 CH$WCHAR_A (.y, d_ptr);
: 229 0356 7 CH$WCHAR_A (CH$RCHAR_A (s_ptr), d_ptr);
: 230 0357 7 i = .i + 2;
: 231 0358 7 END
: 232 0359 6 END
: 233 0360 5 ELSE
: 234 0361 5 CH$WCHAR_A (.x, d_ptr); !Move a "normal" character
: 235 0362 4 END; !End of compression.
: 236 0363 4
: 237 0364 4 !Update TSF and SCA
: 238 0365 4 tsf_jus_cnt = 0;
: 239 0366 4 sca_wrd_ptr = .d_ptr;
: 240 0367 4 !Update MRA information
: 241 0368 4 fs_next (mra) = .d_ptr;
: 242 0369 4 fs_length (mra) = CH$diff (.d_ptr, .fs_start (mra));
: 243 0370 4 tsf_int_hl = .fs_length (mra) - .tsf_int_vl;
: 244 0371 4
: 245 0372 4 +
: 246 0373 4 Now put the required number of spaces onto the line. The spaces are
: 247 0374 4 inserted in such a way that they become part of the word that will later be
: 248 0375 4 built. The assumption being made is that the next word will fit on the
: 249 0376 4 line being put together. If it does not, then the word with the expanded
: 250 0377 4 tab prefixed to it will appear on the following line. However, this will
: 251 0378 4 probably not happen, since RUNOFF users will use tabs to set up columns,
: 252 0379 4 and will have counted carefully. Another reason for going through the
: 253 0380 4 standard character processing is that the tab may be the first thing to be
: 254 0381 4 output. In that case, it is important that certain information that
: 255 0382 4 appears before the first character be added in proper sequence. When
: 256 0383 4 outputting spaces, turn off underlining, bolding, etc. This avoids the
: 257 0384 4 problem of having input such as ^&A B\& generate A____B.
: 258 0385 4
: 259 0386 4 hold_cnbits = .sca_wrd_cnbits;
: 260 0387 4 sca_wrd_acnbits = false;
: 261 0388 4
: 262 0389 4 INCR i FROM 1 TO .fill_count DO
: 263 0390 5 BEGIN
: 264 0391 5 sca_wrd_cnbits = false;
: 265 0392 5 ENDCHR (%C' ');
: 266 0393 4 END;
: 267 0394 4 sca_wrd_cnbits = .hold_cnbits;
: 268 0395 4 RETURN TRUE; !Successful tab expansion.
: 269 0396 3 END; !End of processing of an applicable tab
: 270 0397 3
: 271 0398 2 END;
```



```

: 272      0399  2
: 273      0400  2      RETURN FALSE;
: 274      0401  1      END:

```

```
!Falling through means no suitable tab setting was found.
!End of XTAB
```

.TITLE	XTAB	
.IDENT	\V04-000\	
.EXTRN	RINTES, MRA, SCA	
.EXTRN	TSF, TTABLE, ENDCHR	
.EXTRN	ENDWRD, FCIMRA, REMNEG	
.PSECT	\$CODE\$,NOWRT,2	
.ENTRY	XTAB, Save R2,R3,R4,R5,R6,R7,R8,R9,R10,R11	: 0228
SUBL2	#4, SP	:
MOVL	TSF, R0	: 0272
TSTL	4(R0)	:
BNEQ	2\$	:
BLBC	SCA+148, 2\$	: 0273
TSTL	SCA+220	: 0279
BLEQ	1\$	:
CLRL	SCA+220	: 0281
ADDL3	SCA+220, @SCA+116, CURRENT_EXT_HL	: 0283
BRB	3\$	: 0272
MOVL	4(R0), CURRENT_EXT_HL	: 0286
BGEQ	4\$	: 0288
CALLS	#0, REMNEG	: 0291
CLRL	CURRENT_EXT_HL	: 0292
ADDL3	SCA+256, CURRENT_EXT_HL, R0	: 0295
ADDL3	SCA+332, R0, CURRENT_EXT_HL	:
CMPL	SCA+280, #32	: 0297
BLSS	5\$	:
INCL	CURRENT_EXT_HL	: 0299
MOVL	TTABLE+4, R0	: 0301
CLRL	I	: 0303
BRW	16\$	:
MOVL	TTABLE+4[I], R0	:
CMPL	R0, CURRENT_EXT_HL	:
BLEQ	6\$	:
CMPL	R0, @SCA+120	: 0312
BLSS	8\$	:
BRW	17\$	:
SUBL3	CURRENT_EXT_HL, R0, FILL_COUNT	: 0316
CLRQ	-(SP)	: 0324
CLRL	-(SP)	:
CALLS	#3, ENDWRD	:
MOVL	MRA, R0	: 0329
MOVL	(R0), S_PTR	:
MOVL	S_PTR, D_PTR	: 0330
MOVL	TSF, R1	: 0332
ADDL3	24(R1), (R1), R9	:
CLRL	I	:
BRB	13\$	:
MOVZBL	(S_PTR)+, X	: 0338
CMPL	X-#RINTES	: 0340
BNEQ	12\$	:

XTAB
V04-000

Module Level Declarations

D 5
16-Sep-1984 01:57:23
14-Sep-1984 13:08:31

VAX-11 Bliss-32 V4.0-742
DISK\$VMSMASTER:[RUNOFF.SRC]XTAB.BLI;1

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0000004A	58	87	9A	000BB	MOVZBL	(S_PTR)+, Y	0344
	8F	58	D1	000BE	CMPL	Y, #74	0346
		04	12	000C5	BNEQ	10\$	
		57	D6	000C7	INCL	S_PTR	0349
		0A	11	000C9	BRB	1T\$	0346
	83	8F	90	000CB	10\$:	MOV B #RINTES, (D_PTR)+	0354
	83	58	90	000CF		MOV B Y, (D_PTR)+	0355
	83	87	90	000D2		MOV B (S_PTR)+, (D_PTR)+	0356
	56	02	C0	000D5	11\$:	ADDL2 #2, I	0350
		03	11	000D8		BRB 13\$	0361
	83	55	90	000DA	12\$:	MOV B X, (D_PTR)+	
CE	56	59	F3	000DD	13\$:	AOBLEQ R9, I, 9\$	0332
		A1	D4	000E1		CLRL 32(R1)	0365
00000000G	EF	53	D0	000E4		MOVL D_PTR, SCA+248	0366
04	A0	53	D0	000EB		MOVL D_PTR, 4(R0)	0368
OC	61	60	C3	000EF		SUBL3 (R0), D_PTR, 12(R0)	0369
	OC	A1	C3	000F4		SUBL3 24(R1), -12(R0), (R1)	0370
		5B	D0	000FA		MOVL SCA+196, HOLD_CNBITS	0386
	00000000G	EF	D4	00101		CLRL SCA+200	0387
	00000000G	55	D4	00107		CLRL I	0389
		0F	11	00109		BRB 15\$	
	00000000G	EF	D4	0010B	14\$:	CLRL SCA+196	0391
		20	DD	00111		PUSHL #32	0392
	00000000G	01	FB	00113		CALLS #1, ENDCHR	
ED	55	6E	F3	0011A	15\$:	AOBLEQ FILL_COUNT, I, 14\$	0389
	00000000G	5B	D0	0011E		MOVL HOLD_CNBITS, SCA+196	0394
		01	D0	00125		MOVL #1, R0	0395
			04	00128		RET	
FF3B	54	5A	F1	00129	16\$:	ACBL R10, #1, I, 7\$	0301
		50	D4	0012F	17\$:	CLRL R0	0401
			04	00131		RET	

; Routine Size: 306 bytes, Routine Base: \$CODE\$ + 0000

: 275 0402 1
: 276 0403 1 END
: 277 0404 0 ELUDOM

!End of module

PSECT SUMMARY

Name	Bytes	Attributes
\$CODE\$	306	NOVEC, NOWRT, RD, EXE, NOSHR, LCL, REL, CON, NOPIC, ALIGN(2)

Library Statistics

File	Symbols		Pages Mapped	Processing Time
	Total	Loaded Percent		

XTAB
V04-000

Module Level Declarations

E 5
16-Sep-1984 01:57:23
14-Sep-1984 13:08:31

VAX-11 Bliss-32 V4.0-742
DISK\$VMSMASTER:[RUNOFF.SRC]XTAB.BLI;1 Page 9 (4)

```
;
; $255$DUA28:[SYSLIB]XPORT.L32;1          590      0      0      252      00:00.1
; _$255$DUA28:[RUNOFF.SRC]DSRLIB.L32;1      1248     29      2      86      00:00.3
```

COMMAND QUALIFIERS

```
;
; BLISS/CHECK=(FIELD,INITIAL,OPTIMIZE)/LIS=LIS$:XTAB/OBJ=OBJ$:XTAB MSRC$:XTAB/UPDATE=(ENH$:XTAB)
```

```
; Size:          306 code + 0 data bytes
; Run Time:       00:07.6
; Elapsed Time:   00:20.7
; Lines/CPU Min:  3189
; Lexemes/CPU-Min: 13689
; Memory Used:    97 pages
; Compilation Complete
```


0350

AH-BT13A-SE
VAX/VMS V4.0

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